

# TIME MODULATION<sup>SM</sup>

The Revolution in Wireless Communications  
Ultra-Wideband Radio And Radar Technology

presented by

*Ralph G. Petroff, CEO*

**Time Domain**

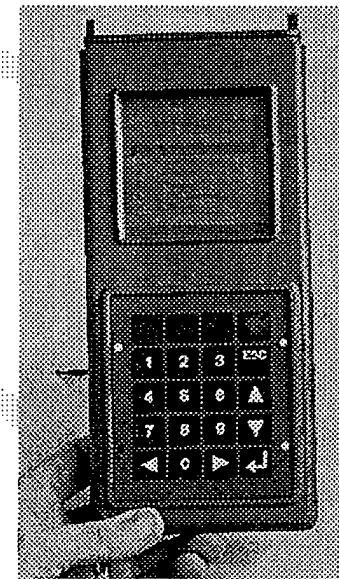
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We are

Time Modulated Ultra-Wideband  
Technology

The Radio Is

**STEALTHLINK<sup>TM</sup>**



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For SPECIAL OPERATIONS FORCES

StealthLink<sup>TM</sup> Is

- Extremely LPI/LPD
- Ultrawide RF Bandwidth
- High Data Rate
- Very Low Power Spectral Density
- Large Number of Channels
- Multi-Path Immunity
- Sub-cm Ranging

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To Be Absolutely Clear -

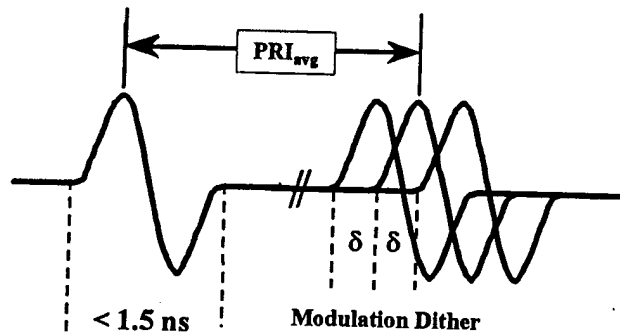
## TIME MODULATION<sup>SM</sup> IS NOT

- Narrowband
- Spread Spectrum (Frequency Hopping or Direct Spectrum)
- Conventional Ultra-Wideband

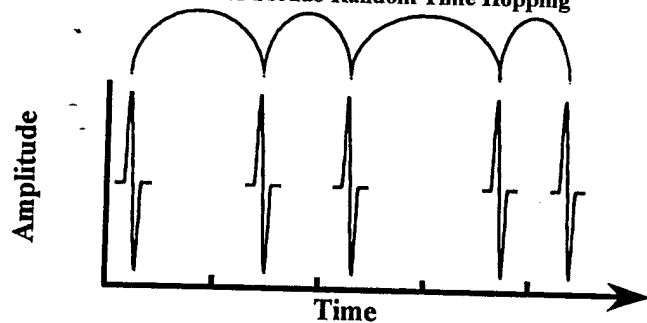
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## Time Modulation Fundamentals

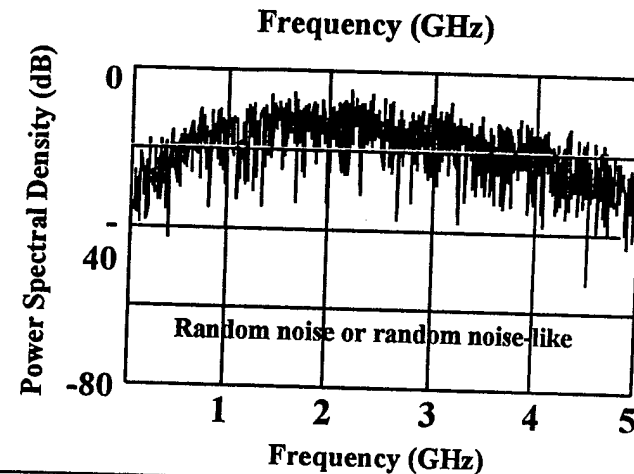
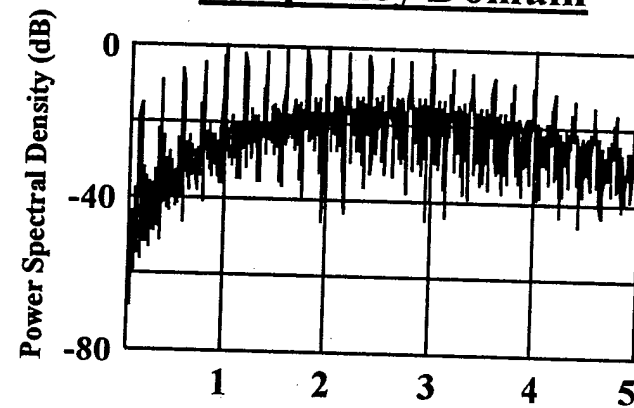
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Random or Pseudo Random Time Hopping

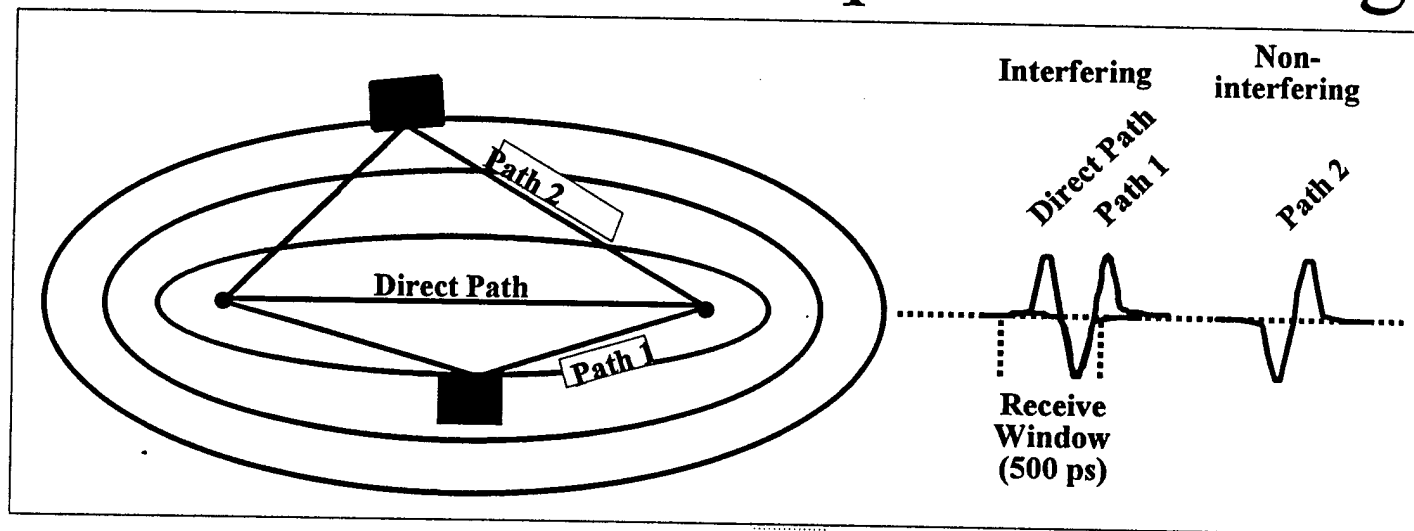


Frequency Domain



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## StealthLink<sup>TM</sup> 's Multipath Advantage



- RAYLEIGH FADING : A Continuous Wave Phenomenon
  - Conventional Radios Overcome Fading with Power
  - High Power Transmitter are Detectable and Consumed Batteries
- StealthLink Does Not Use Continuous Waves
  - No Rayleigh fading
  - No high power transmission required to overcome Rayleigh fading

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## Time Modulation Technology Development

- First Patented in 1986
- Applications in Aerial & Ground Penetrating Radar
- Applications in Photonics & Pulsed Power
- Prototype Short Range Gated Proximity Sensor
- Prototype StealthBug
- Prototype Security Field
- Prototype Sparse Array Antennas for Radio & Radar
- Application Specific Integrated Circuits (ASICs) - 3 in Process

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StealthLink<sup>TM</sup> :

Ultra-Wideband Technology Electronic Device

- U.S. Marine Corps Amphibious Warfare Technology Directorate
- U.S. Army Communications & Electronics Command
- Technology Demonstrator for Time Modulation Radio Technology
- Deliverable : 16 StealthLink<sup>TM</sup> Radios
- Status : In Delivery



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## Value of Time Modulation<sup>TM</sup>

Operational Capability	Superiority Through a Time Modulation Solution
Information Superiority	<ul style="list-style-type: none"><li>• Inherently LPI/D</li><li>• Secure Ad Hoc Networking</li><li>• Higher Information Throughputs</li><li>• Greater Simultaneous Numbers of Users</li></ul>
Dominant Maneuver for MOUT	<ul style="list-style-type: none"><li>• Robust Urban area and In-Building Communications</li><li>• LPI /LPD Communications</li><li>• Under Ground Communications</li><li>• Geo-Location (Independent of GPS)</li></ul>
Precision Engagement	<ul style="list-style-type: none"><li>• Real time situational awareness</li><li>• Combat ID</li><li>• Geo-Location (Independent of GPS)</li></ul>
Full Dimensional Protection	<ul style="list-style-type: none"><li>• Network(s) of Self-Organizing Security Sensors Through a Software Implemented Enhancement Telemedicine Functions</li></ul>
Logistics Management	<ul style="list-style-type: none"><li>• LPD RF Tagging of Material</li></ul>

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**Time Domain<sup>SM</sup> Offers the Solution  
for  
Tomorrow's Military Communications :  
RIGHT NOW**

**6700 Odyssey Drive    Huntsville, AL 35806    Phone : 1-888-826-8378    [www.time-domain.com](http://www.time-domain.com)**